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Pseudoglyphea friulana n. sp.
(Decapoda, Astacidea, Mecochiridae) from the
Upper Triassic (Carnian) of Dogna
(Udine, Friuli-Venezia Giulia, NE Italy)

Abstract – A single specimen, discovered in the Upper Triassic (Carnian) of Rio del Lago Formation, cropping out close to Dogna village (Udine, NE Italy), is assigned to *Pseudoglyphea friulana* n. sp. (Astacidea Latreille, 1802, Mecochiridae Van Straelen, 1925). It is the oldest report of this genus in Italy. *P. gigantea* Garassino & Teruzzi, 1993, was described from the Norian of Ponte Giurino (Bergamo).

Key words: Crustacea, Decapoda, Triassic, Italy.

Riassunto – *Pseudoglyphea friulana* n. sp. (Decapoda, Astacidea, Mecochiridae) del Triassico superiore (Carnico) di Dogna (Udine, Friuli-Venezia Giulia, NE Italia).

Un esemplare, rinvenuto nel Triassico superiore (Carnico) della Formazione di Rio del Lago affiorante in prossimità del paese di Dogna (Udine, NE Italia), è attribuito a *Pseudoglyphea friulana* n. sp. (Astacidea Latreille, 1802, Mecochiridae Van Straelen, 1925). Si tratta della più antica testimonianza di questo genere in Italia. *P. gigantea* Garassino & Teruzzi, 1993, è stata descritta nel Norico di Ponte Giurino (Bergamo).

Parole chiave: Crustacea, Decapoda, Triassico, Italia.

Introduction and geological setting

The studied specimen, discovered near Gran Colle village, about two kilometres northwest of Dogna village (Udine) (Fig. 1), comes from the lower part of a section, 8 m thick, consisting of an irregular alternation of dark grey to blackish, bioturbated to nodular, often molluscs-rich limestone beds, and levels of blackish-dark greenish, clayey marls. The unit where the studied specimen was collected is referred to the Rio del Lago Formation of the nearby Cave del Predil area (Preto *et al.*, 2005) (Fig. 2). Ammonoids and palynomorphs are typical of the middle Julian *aonoides* Subzone (*Trachyceras* zone) (Roghi, 2004; Preto *et al.*, 2005),

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supporting the lower Carnian age for the Rio del Lago Formation and for the studied specimen.

The Rio del Lago Formation of Dogna area is rich in shallow water marine invertebrates (bivalves, gastropods, echinoderms, and corals), marine vertebrates (Pinna, 1990; Sirna *et al.*, 1994; Nosotti & Pinna, 1999; Rieppel & Dalla Vecchia, 2001; Dalla Vecchia & Avanzini, 2002; Dalla Vecchia, 2006), and plants, including chiefly conifers and pteridosperms (Roghi *et al.*, 2006).

Material

The studied specimen is flattened on the layer surface and its preparation was difficult due to the hard consistency of the surrounding matrix. The study of this complete specimen, housed in the Palaeontological Collections of Museo Friulano di Storia Naturale di Udine (MFSN), permitted identification of the new species, *Pseudoglyphea friulana*.

The systematic arrangement used in this paper follows the recent classification proposed by Feldmann *et al.* (2002).

Systematic Palaeontology

Infraorder Astacidea Latreille, 1802
 Superfamily Glypheoidea Zittel, 1885
 Family Mecochiridae Van Straelen, 1925
 Genus *Pseudoglyphea* Oppel, 1861

Type species: *Glyphea grandis* v. Meyer, 1837, by original designation.

Included species: *P. grandis* (v. Meyer, 1837) (Lower Jurassic: Hettangian-Pliensbachian; Germany, France, Great Britain); *P. numismalis* (Oppel, 1853)

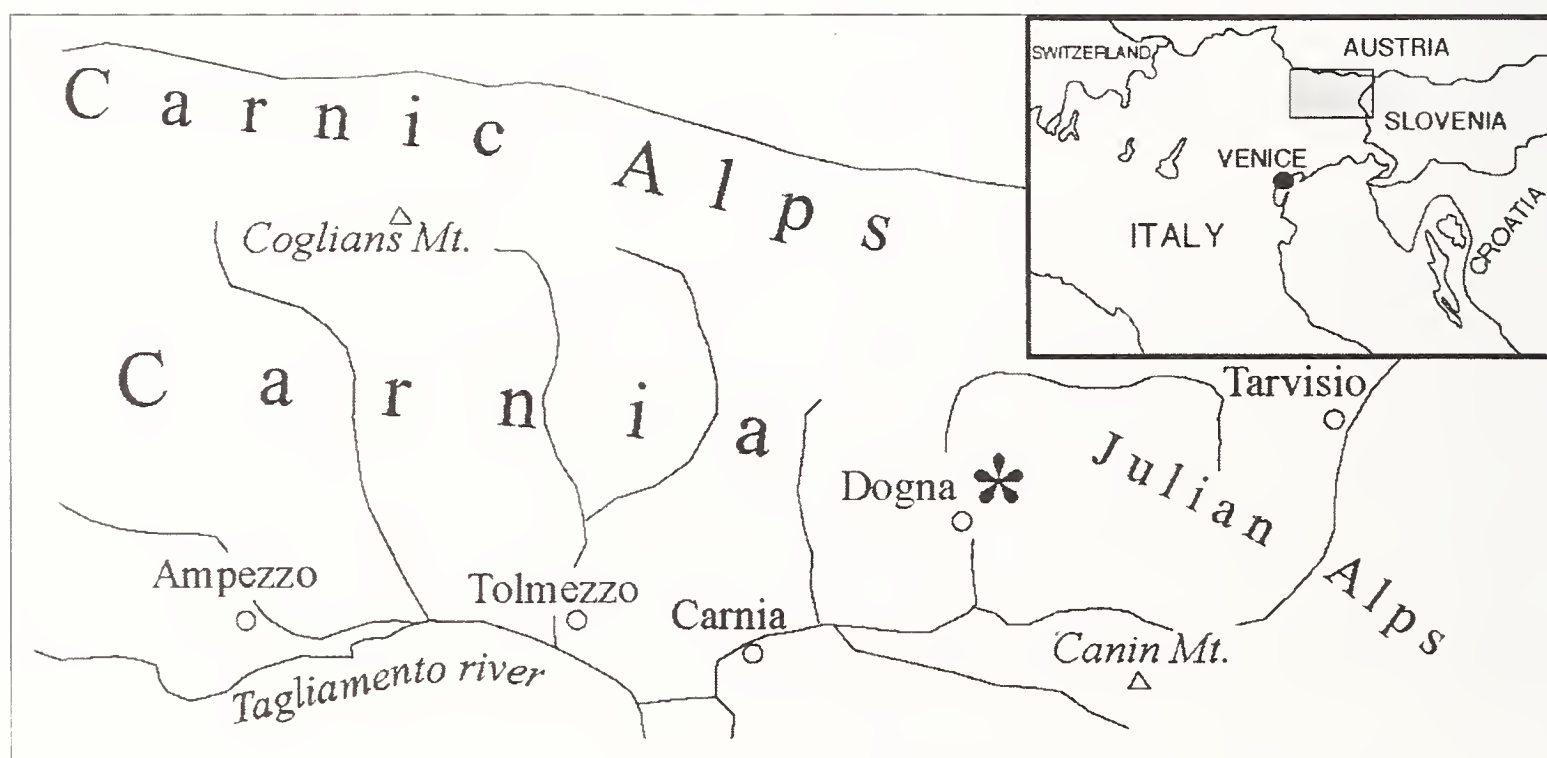


Fig. 1 – Geographic map with the location of the fossiliferous locality (*). (Mappa geografica con ubicazione della località fossilifera *).

(Lower Jurassic: Pliensbachian; Germany); *P. eximia* Oppel, 1861 (Upper Jurassic: Oxfordian; France); *P. amalthea* Oppel, 1861 (Lower Jurassic: Pliensbachian; Germany); *P. terquemi* (Oppel, 1861) (Upper Jurassic: Oxfordian; France); *P. etalloni* Oppel, 1862 (Lower Jurassic: Pliensbachian; France, Great Britain); *P. ancylocheilis* (Woodward, 1863) (Lower Jurassic: Sinemurian; Italy, Great Britain); *P. jourdani* (Dumortier, 1867) (Lower Jurassic: Sinemurian; France); *P. paronae* (Colosi, 1921) (Lower Jurassic: Pliensbachian; Italy); *P. spinosa* (Assmann, 1927) (Middle Triassic: Anisian; Germany); *P. mulleri* (Van Straelen, 1936) (Upper Triassic: Carnian; United States); *P. straeleni* Théobald, 1953 (Middle Jurassic: Aalenian; France); *P. alpina* Förster, 1971 (Upper Triassic: Rhaetian; Austria); *P. gigantea* Garassino & Teruzzi, 1993 (Upper Triassic: Norian; Italy); *P. foersteri* Feldmann, Crisp & Pirrie, 2002 (Lower Jurassic: Pliensbachian; Great Britain).

Diagnosis: subcylindrical carapace; long rostrum; cephalic region with longitudinal ridges reduced or absent; well marked cervical groove; postcervical and branchiocardiac grooves closely spaced and parallel, approaching or extending to dorsal midline; well marked hepatic groove extends in smooth arc defining posterior, ventral, and anterior margins of “adductor testis” muscle attachment; inferior groove absent or weakly marked; strong and subchelate pereopod I; subchelate pereopods II-III; abdominal terga pitted or smooth; uropodal exopod with or without diaeresis (modified from Feldmann *et al.*, 2002).



Fig. 2 – Rio del Lago Formation where the studied specimen was discovered. (Formazione di Rio del Lago dove è stato rinvenuto l'esemplare studiato).

Pseudoglyphea friulana n. sp.

Figs. 3-4

Diagnosis: subcylindrical carapace; long rostrum with one or two small supralateral teeth; strongly serrate dorsal margin of carapace; strong antennal spine; well marked cervical groove; weak hepatic, postcervical and branchiocardiac grooves; strongly elongate pereopod I subchelate; propodus of pereopod I with two strong teeth (one distal, one median) along lower margin; strongly elongate pereopods II-III subchelate; uropodal exopod with diaeresis.

Etymology: the trivial name alludes to Friuli-Venezia Giulia, region where the studied specimen was discovered.

Holotype: MFSN 34553.

Geological age: Upper Triassic (Carnian).

Type locality: Dogna (Udine, Friuli-Venezia Giulia).

Occurrence: one complete specimen in lateral view, 13 cm long. MFSN 34553.

Description. Large-sized mecochirid with spinose to tuberculate ornamentation on carapace.

Carapace. Subcylindrical carapace laterally flattened with spinose to tuberculate ornamentation. Long rostrum with one or two small supralateral teeth. Dorsal margin strongly serrate with small spines directed forward. Posterior margin sinuous, strongly convex in median and lower parts, covering tergum of somite I. Strong antennal spine. Deep cervical groove slightly sinuous curving into short and weakly developed antennal groove. Weak postcervical and branchiocardiac grooves. Shallow and narrow ocular incision.

Abdomen. Somites I-V badly preserved. Somites IV-V with triangular pleura having small lateral spines. Subrectangular somite VI with slightly tuberculate surface. Telson triangular. Uropodal exopod and endopod with slightly tuberculate surface. Uropodal exopod with subrounded diaeresis.

Cephalic appendages. Not preserved. Only fragments of antennular and antennal flagella.

Thoracic appendages. 3rd maxilliped not preserved. Pereiopod I strongly elongate and subchelate. Elongate and subrectangular merus with strong spines on upper and lower margins. Subtriangular carpus. Elongate and subrectangular propodus with two strong spines: the median stronger than the distal one. A pair of small spines located before the two strong spines. Strongly elongate dactylus with margins having a row of small spines. Surface of articles strongly tuberculate. Pereiopods II-III with small subchela, having strongly elongate, thin merus and propodus.

Abdominal appendages. Not preserved.

Discussion. *Pseudoglyphea friulana* n. sp. exhibits all morphological characters necessary to permit certain assignment within *Pseudoglyphea*. Among the above-mentioned species, four are from the Upper Triassic: *P. spinosa* (Assmann, 1927), *P. mulleri* (Van Straelen, 1936), *P. gigantea* Garassino & Teruzzi, 1993, and *P. alpina* Förster, 1971 (Assmann, 1927; Van Straelen, 1936; Förster, 1971; Garassino & Teruzzi, 1993). The comparison between *P. mulleri* and the new species is difficult because the American specimen is very poorly preserved. *P. friulana* n. sp. is distinct from *P. gigantea* and *P. alpina* in exhibiting a serrate dorsal carapace margin, a rostrum with supralateral teeth, lack of

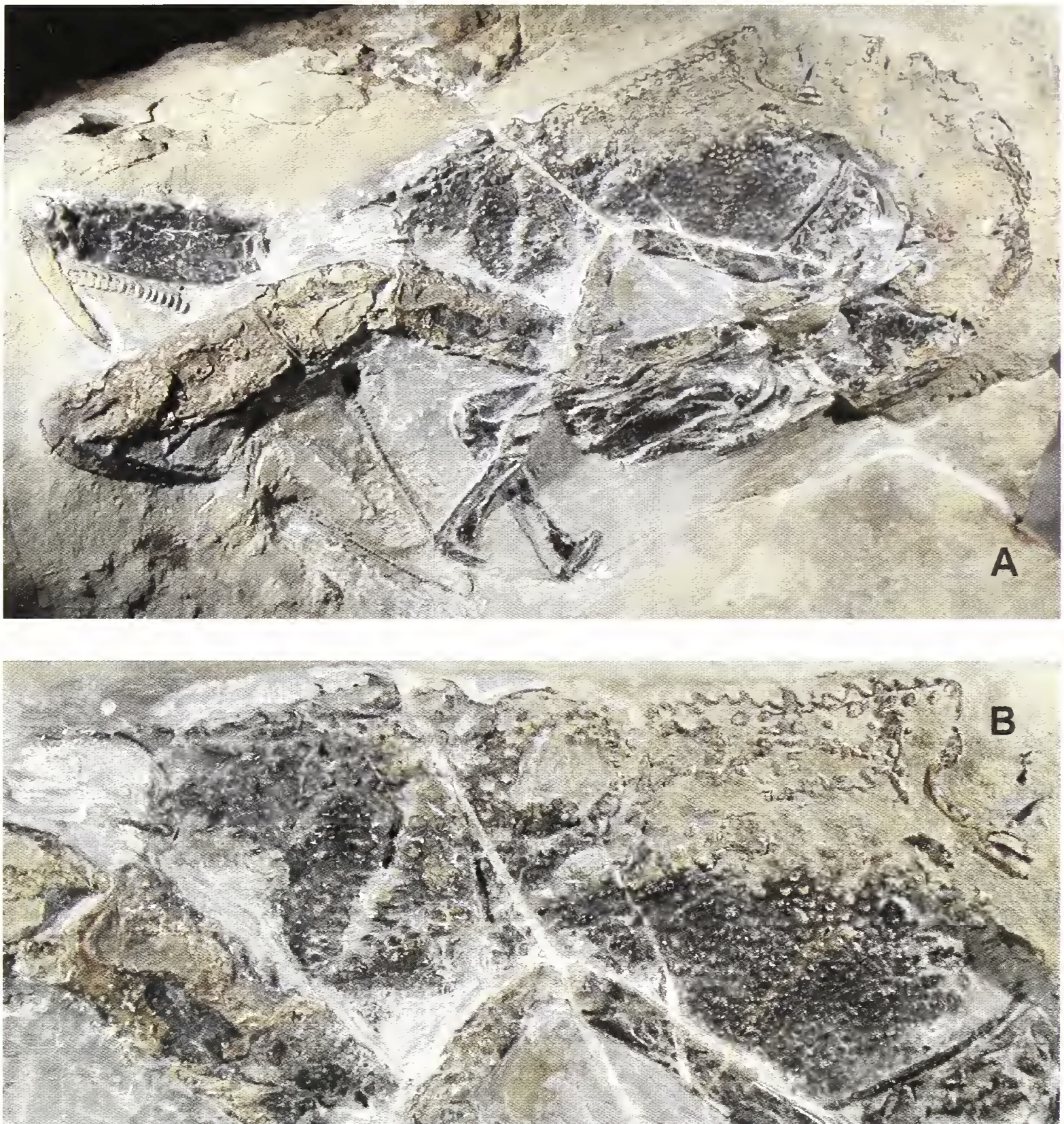


Fig. 3 – A) *Pseudoglypheia friulana* n. sp., holotype (olotipo), MFSN 34553 (x 1). B) *Pseudoglypheia friulana* n. sp., detail of the carapace (dettaglio del carapace) (x 2).

carinae in the antennal region, weak postcervical and branchiocardiac grooves, and a lower margin of the propodus of pereopod I with two strong median and distal spines. Even though, *P. spinosa* was described on an incomplete carapace, the new species resembles it in exhibiting a serrate dorsal margin of carapace. However, *P. friulana* n. sp. is distinct from *P. spinosa* in possessing weak postcervical and branchiocardiac grooves and lack of carinae in antennal region. A serrate dorsal carapace margin is also present on *P. ancylochelis*, reported from the Sinemurian of Lyme Regis (Great Britain) (Woodward, 1863) and Osteno (N Italy) (Garassino, 1996). However, *P. friulana* n. sp. is distinct from this species in possessing a weak postcervical, branchiocardiac, and hepatic grooves and a lower margin of the propodus of pereopod I with two strong median and distal spines.

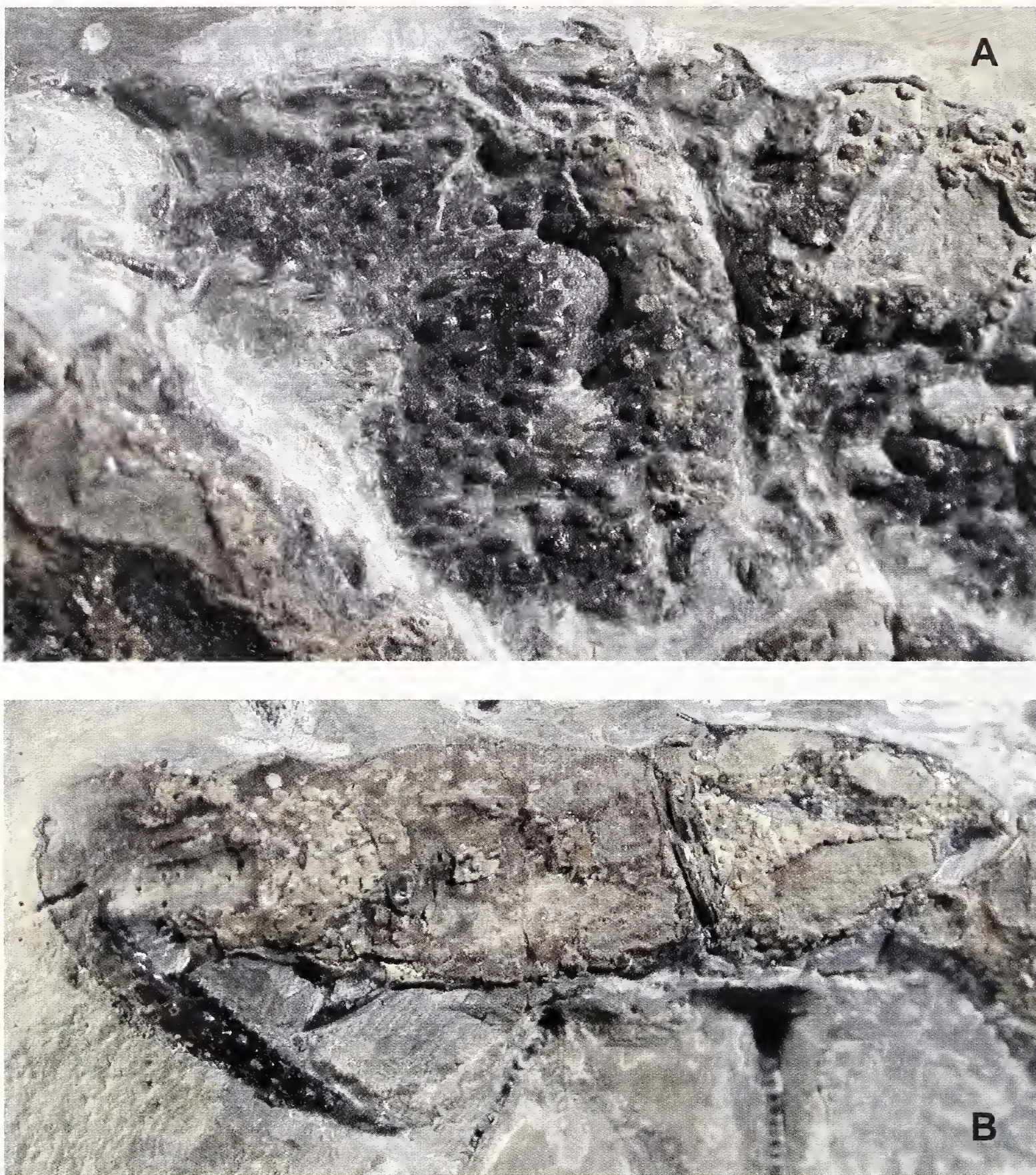


Fig. 4 – A) *Pseudoglyphea friulana* n. sp., detail of the ornamentation of the carapace (dettaglio dell'ornamentazione del carapace) (x 4). B) *Pseudoglyphea friulana* n. sp., detail of the pereopod I (dettaglio del pereopode I) (x 2.5).

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